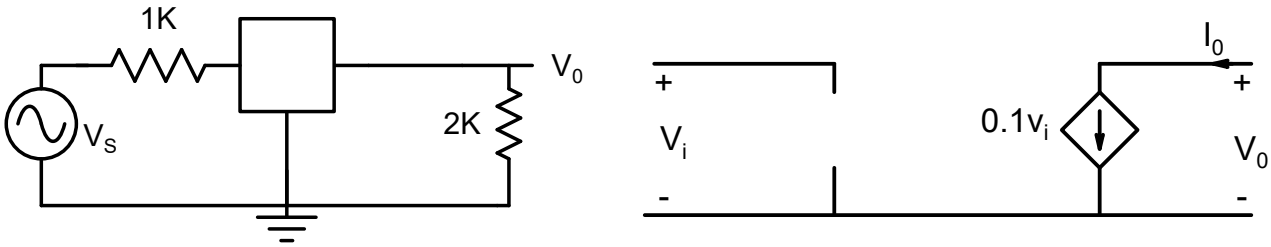
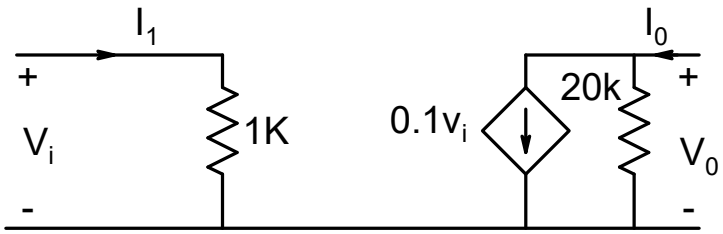
ESC201T: Introduction to Electronics

HW -8 **Date: 04.11.2020**

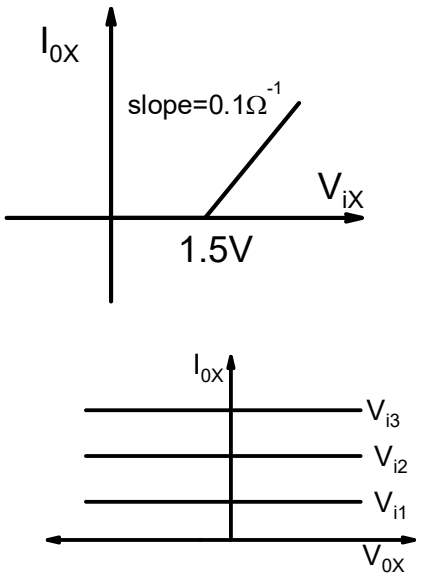
Q.1 Determine the voltage gain of the amplifier for the ideal transistor model shown below:

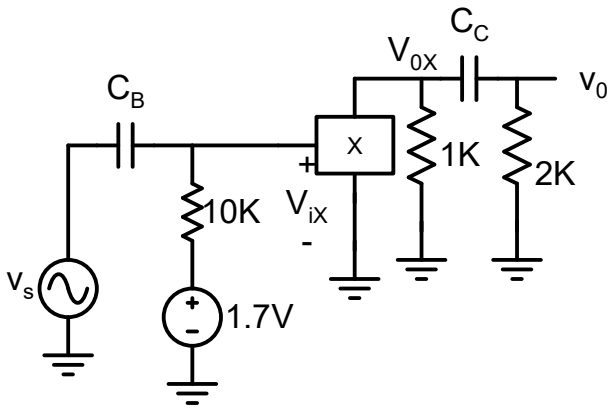


Q.2 Determine the voltage and power gain of the amplifier shown above for the transistor model shown below

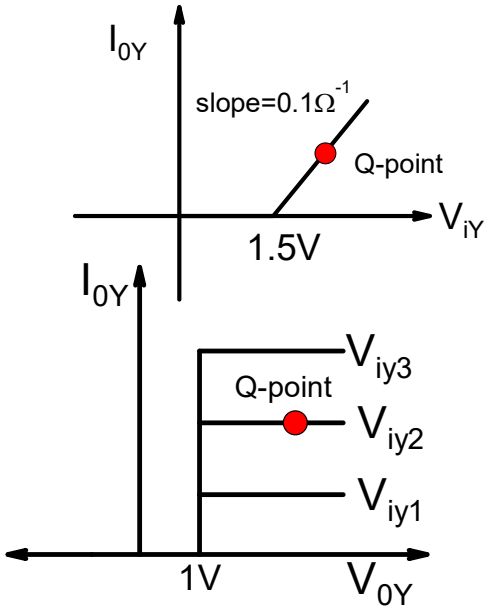


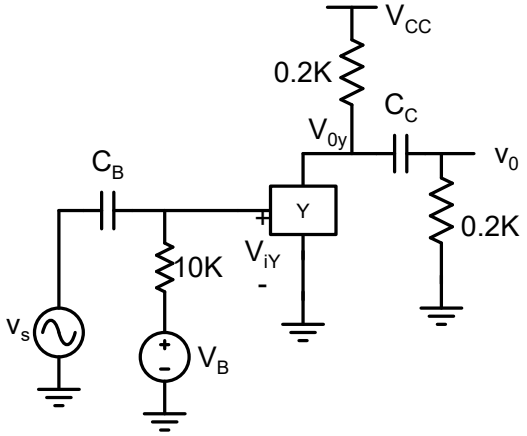
Q.3 Carry out dc and ac analysis of the amplifier circuit shown below on the right for the device X characteristics shown below on the left. Sketch V_{IX} V_{OX} and v_o for vs = 0.2Sin(ωt).





Q.4 Determine appropriate Q point (dc value of V_{iY} and V_{OY}) so that the amplifier shown below on the right would properly amplify an input voltage of $v_s = 0.2\sin(\omega t)$. Determine minimum supply voltage V_{CC} for which the amplifier would work properly.





Q.5 Carry out dc and ac analysis of the amplifier circuit shown below on the right to determine bias or Q- point (dc value of I_{OZ} and V_{OZ}) and ac voltage gain.